SECTION 1410

RESILIENT-SEATED GATE VALVE

1410.0100 GENERAL

1410.0101 Description of Work. The work under this Section shall consist of furnishing all labor, materials, and equipment required for the installation of 4-inch through 16-inch resilient-seated gate valves, all in accordance with the details shown on the plans and requirements of these specifications. Metal-sealed gate valves shall not be used.

1410.0104 Delivery, Storage, and Handling. Resilient-seated gate valves shall be delivered to the site, stored, and handled in accordance with the manufacturer's instructions except as modified by the plans, special specifications, or as directed by the Engineer.

1410.0200 PRODUCTS

1410.0201 Materials.

(A) Standards. Resilient-seated gate valves and the materials used in their manufacture shall comply with the standards in Appendix B and appear on the Approved Materials List in Appendix A.

(B) Pressure Class. Design pressure for resilient-seated gate valves shall be 200 pounds per square inch for valves 12 inches smaller, and 150 pounds per square inch for valves 16 inches and larger. Valves for operating pressures other than the above shall be as specified on the plans or in the special specifications.

(C) Component Parts. Unless otherwise noted, component parts for resilient-seated gate valves shall be in accordance with AWWA C509 and AWWA C515. All components of resilient-seated valves shall be tested and certified by an approved testing laboratory located in the United States. All parts shall be readily available and shall meet the following requirements:

(1) The valve manufacturer's name along with the valve model number, size, and year of manufacture shall be cast on the body.

(2) The resilient seat shall be fastened to the gate using either mechanical, stainless steel fasteners or vulcanizing methods in accordance with the requirements of ASTM D429 and the manufacturer's recommended procedures.

(3) Resilient-seated gate valves shall be provided with a 2-inch square operating nut. When specified on the plans, a hand wheel shall be used. The direction to open the valve shall be to the left (counter clockwise), and a direction indication for opening the valve shall be cast on the operating nut. Position indicators shall not be required unless specified on the plans or in the special specifications. Valves must have a minimum of 2 turns per inch of diameter.

(4) All interior ferrous surfaces exposed to fluid flow—including the gate—shall be factory coated with a thermosetting or fusion epoxy coating. The coating shall be safe for potable water systems in accordance with AWWA C550. The minimum coating thickness shall be 10 millimeters.

(5) The wedge shall be manufactured of ductile iron and fully encapsulated in a molded EPDM resilient material resistant to heat, corrosion, hydrolysis, tuberculation, abrasion, and bacteria, and shall comply with AWWA C509.

(6) All exterior ferrous surfaces, including nuts and bolts, shall be field coated with a fast-curing sealant from the Approved Materials List (Appendix A) for this use. Application of the sealant shall be accordance with the manufacturer's recommendations. Nuts and bolts may be manufactured of ASTM type 304 or 316 stainless steel in lieu of being coated.

(7) All internal parts shall be accessible for repair or replacement without removing the valve body from the pressure line. The stem shall be sealed by using a minimum of 2 O-rings. The O-rings shall be located above the stem collar and shall be replaceable under pressure with the valve in the open position.

(8) The diameter of the internal passageway shall have a nominal inside dimension equal to the valve size or larger. The valve shall provide an unobstructed waterway in the full open position making the valve applicable for tapping applications.

(9) Valve stem shall be a high-strength, low-zinc bronze, 40,000-psi yield strength, 70,000-psi tensile strength, with not less than 10 percent elongation. Stem bronze shall conform to the requirements of AWWA C509 Section 2.

(10) Valve ends shall be mechanical joint, conforming to AWWA C110, unless otherwise specified in the Contract Documents. Connection bolts and nuts shall be manufactured of Corten steel or approved equal in accordance with ASTM A242.

(11) Where specified in the Contract Documents, valve ends shall be flanged in accordance with AWWA C110 for 125/150-pound flanges and ASME/ANSI B16.1 for 250/300-pound flanges. Connection bolts and washers shall be manufactured of type 316 stainless steel, and nuts shall be manufactured of type 316 stainless steel with a Xylan coating or approved equal. No anti-seize compound shall be applied on flanged bolts.

1410.0300 EXECUTION

1410.0302 Installation.

(A) General. Valves shall be installed in accordance with Section 0209 and the valve manufacturer's recommendations. All valves shall be encased with an 8-millimeter polyethylene wrap in accordance with AWWA C105, Method C.

(B) Workmanship. All the Contractor's or subcontractor's personnel shall be skilled and knowledgeable regarding installation procedures for the valves and appurtenances being installed.

(C) Valves. Prior to installation in the trench, valves 16 inches or larger shall be fully opened and closed by the Contractor to check the operation and ensure the valve fully seats. A record shall be made of the number of turns required to fully open or close the valve. This record shall be included on the as-built plans. The inside of the valve shall be thoroughly cleaned prior to valve installation.